# Claims

[c001] A method comprising:

receiving a plurality of queue items at an input queue, wherein the input queue feeds a plurality of output queues that feed one or more output ports, wherein each of the plurality of queue items has a corresponding queue item priority and a corresponding output port from the one or more output ports, and wherein each of the plurality of output queues at an output port has a corresponding queue priority;

determining whether a particular one of a plurality of output queues contains a number of queue items that meets or exceeds a pre-determined amount; and

in response to a determination that the particular one of the plurality of output queues contains a number of queue items that meets or exceeds the pre-determined amount, preventing any queue items that have a same corresponding output port as the particular one of the plurality of output queues and that have a queue item priority greater than or equal to the queue priority of the particular one of the plurality of output queues from exiting the input queue.

[c002] The method of claim 1, wherein the pre-determined amount is a capacity of the particular one of the plurality of output queues.

[c003] The method of claim 1, wherein the queue items are packets in a packet-switching fabric.

[c004] The queuing system of claim 3, wherein, upon exit of a packet from one of the plurality of output queues, the packet is transmitted over the packet-switching fabric.

[c005] The method of claim 1, wherein if any of the plurality of output queues contains a number of queue items that meets or exceeds the pre-determined amount, no queue items are allowed to exit the input queue until all of the plurality of output queues contain numbers of queue items that are less than the pre-determined amount.

[c006] The method of claim 5, wherein the pre-determined amount is a capacity of the particular one of the plurality of output queues.

[c007] A computer program product in a computer-readable medium, comprising functional descriptive material that, when executed by a computer, causes the computer to perform actions that include:
receiving a plurality of queue items at an input queue, wherein the input queue feeds a plurality of output

queues that feed one or more output ports, wherein each of the plurality of queue items has a corresponding queue item priority and a corresponding output port from the one or more output ports, and wherein each of the plurality of output queues at an output port has a corresponding queue priority;

determining whether a particular one of a plurality of output queues contains a number of queue items that meets or exceeds a pre-determined amount; and

in response to a determination that the particular one of the plurality of output queues contains a number of queue items that meets or exceeds the pre-determined amount, preventing any queue items that have a same corresponding output port as the particular one of the plurality of output queues and that have a queue item priority greater than or equal to the queue priority of the particular one of the plurality of output queues from exiting the input queue.

[c008] The computer program product of claim 7, wherein the pre-determined amount is a capacity of the particular one of the plurality of output queues.

[c009] The computer program product of claim 7, wherein the queue items are packets in a packet-switching fabric.

[c010] The computer program product of claim 9, wherein,

upon exit of a packet from one of the plurality of output queues, the packet is transmitted over the packet-switching fabric.

[c011] The computer program product of claim 7, wherein if any of the plurality of output queues contains a number of queue items that meets or exceeds the pre-determined amount, no queue items are allowed to exit the input queue until all of the plurality of output queues contain numbers of queue items that are less than the pre-determined amount.

[c012] A queuing system comprising:
an input queue; and
a plurality of output queues,
wherein each of the plurality of output queues is associated with a corresponding queue priority and a corresponding output port,
wherein each of the plurality of output queues receives queue items from a head of the input queue, and
wherein if a particular one of the plurality of output queues contains a number of queue items that meets or exceeds a pre-determined amount, no queue items that have a same corresponding output port as the particular one of the plurality of output queues and that have a queue item priority that is greater than or equal to that of the particular one of the plurality of output queues are

allowed to exit the input queue until the particular one of the plurality of output queues contains a number of queue items that is less than the pre-determined amount.

[c013] The queuing system of claim 12, wherein the pre-determined amount is a capacity of the particular one of the plurality of output queues.

[c014] The queuing system of claim 12, wherein the queue items are packets in a packet-switching fabric.

[c015] The queuing system of claim 14, wherein, upon exit of a packet from one of the plurality of output queues, the packet is transmitted over the packet-switching fabric.

[c016] The queuing system of claim 12, wherein if any of the plurality of output queues contains a number of queue items that meets or exceeds the pre-determined amount, no queue items are allowed to exit the input queue until all of the plurality of output queues contain numbers of queue items that are less than the pre-determined amount.

[c017] The queuing system of claim 16, wherein the pre-determined amount is a capacity of the particular one of the plurality of output queues.

[c018]  The queuing system of claim 12, wherein the queuing system is implemented as a logic circuit.

[c019]  The queuing system of claim 12, wherein each of the plurality of output queues receives only those queue items that have a queue item priority that matches the queue priority of that output queue.

[c020]  The queuing system of claim 19, wherein no queue item may exit one of the plurality of output queues if there is a non-empty higher-priority output queue.